

CLAIMS

1. A method of selectively precipitating arsenic from a solution containing copper, ferric iron and ferrous iron whilst minimising copper losses which includes the steps of:

- (a) introducing an acidic solution containing arsenic(V), copper, ferric iron and ferrous iron in succession into each of a series of continuously stirred tank reactors;
- (b) in each of the tanks adjusting the pH of the solution and adding air to the solution to oxidise a portion of the ferrous iron to ferric iron and heating the solution to an elevated temperature to increase the rate of ferric arsenate precipitation and to minimise copper co-precipitation;
- (c) recycling a portion of selectively precipitated ferric arsenate compounds exiting a final tank in the series to a first tank in the series;
- (d) seeding the solution with ferric arsenate compounds to provide seeds for enhanced crystalline formation; and
- (e) in a second tank in the series, maintaining the pH of the solution at a pH of about 1,5 and selectively precipitating ferric arsenate compounds from the seeded aqueous solution with a first calcium-containing neutralising agent.

2. A method according to claim 1 wherein the molar ratio of iron to arsenic of the solution is at least 1.

3. A method according to claim 1 or 2 wherein the elevated temperature in step (b) is above 60°C and below 100°C.

4. A method according to any one of claims 1 to 3 which is conducted at atmospheric pressure.

5. A method according to any one of claims 1 to 4 wherein the first neutralising agent used in step (e) is limestone.
6. A method according to any one of claims 1 to 5 which includes the steps, in a third tank in the series, of maintaining the pH of the solution at a pH of about 1.9, and selectively precipitating ferric arsenate compounds from the solution with a second calcium-containing neutralising agent.  
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7. A method according to claim 6 wherein the second neutralising agent is limestone.

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